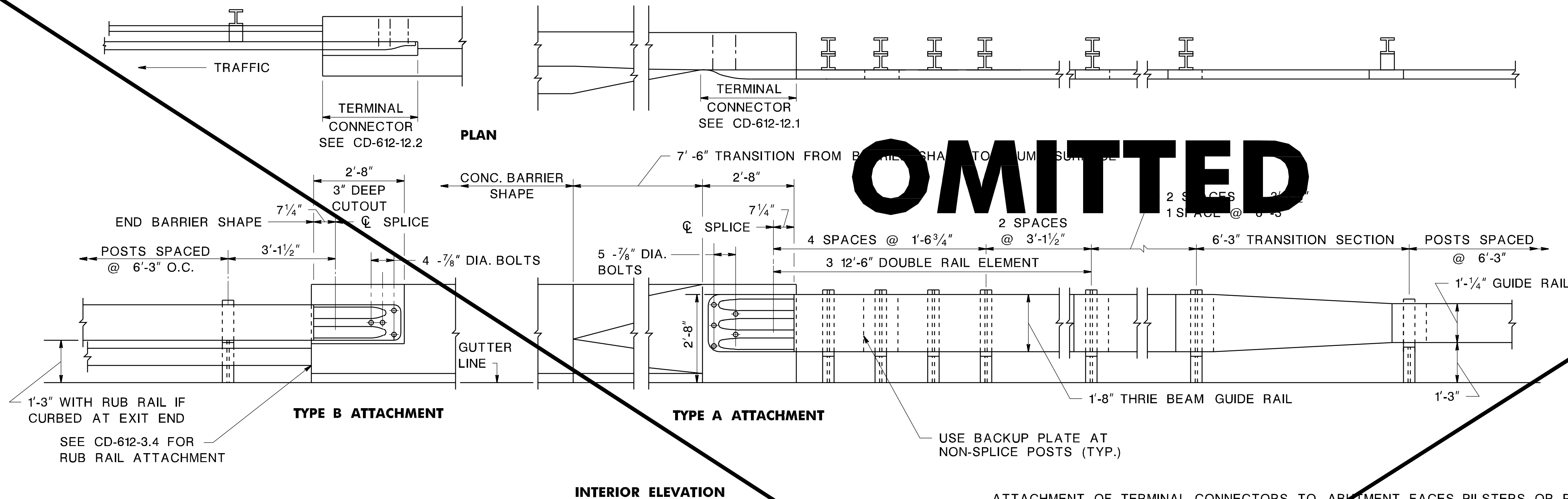


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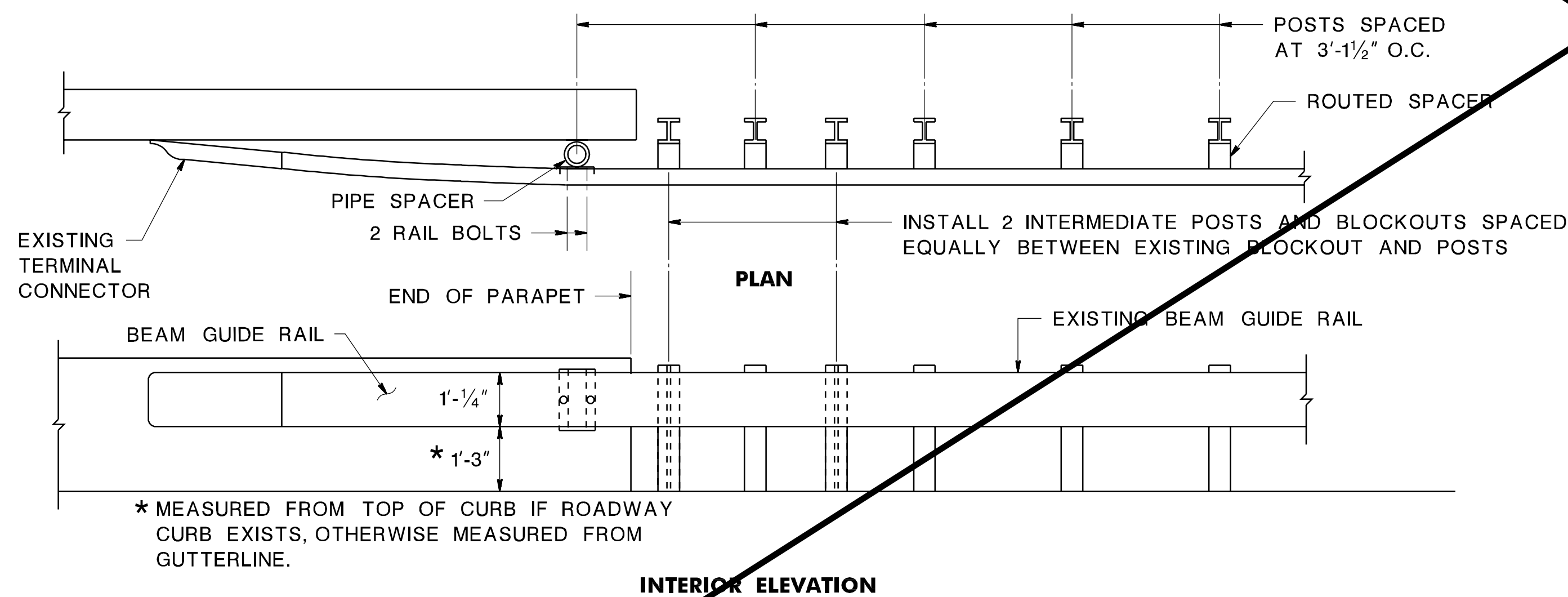


GUIDE RAIL ATTACHMENT TO BARRIER

SEE CD-612-9.4 FOR GENERAL NOTES

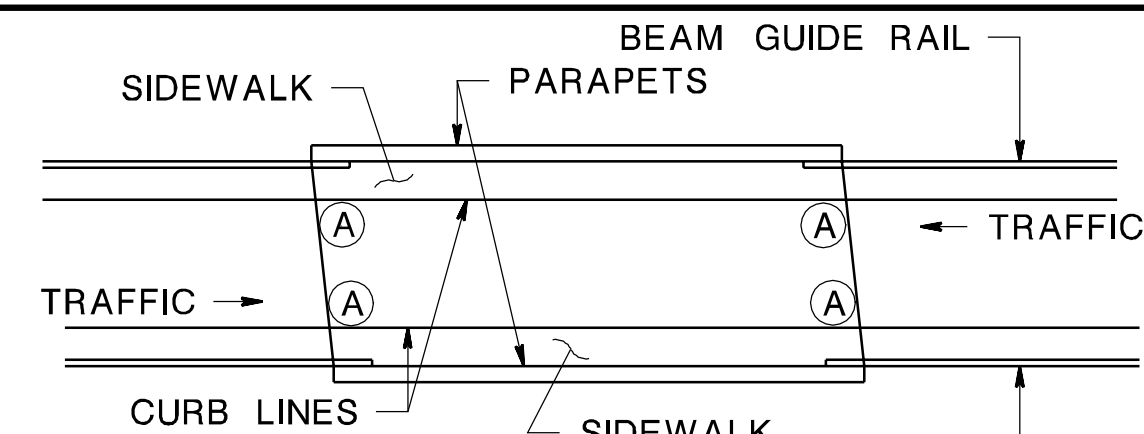
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CD-612-9.4

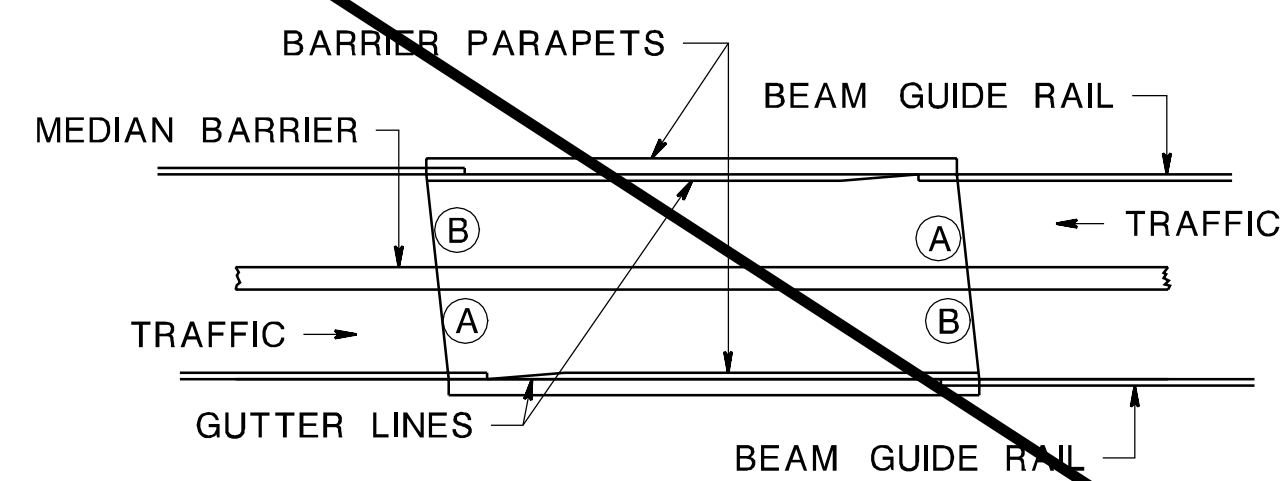


MODIFICATION OF GUIDE RAIL ATTACHMENT TO PARAPET

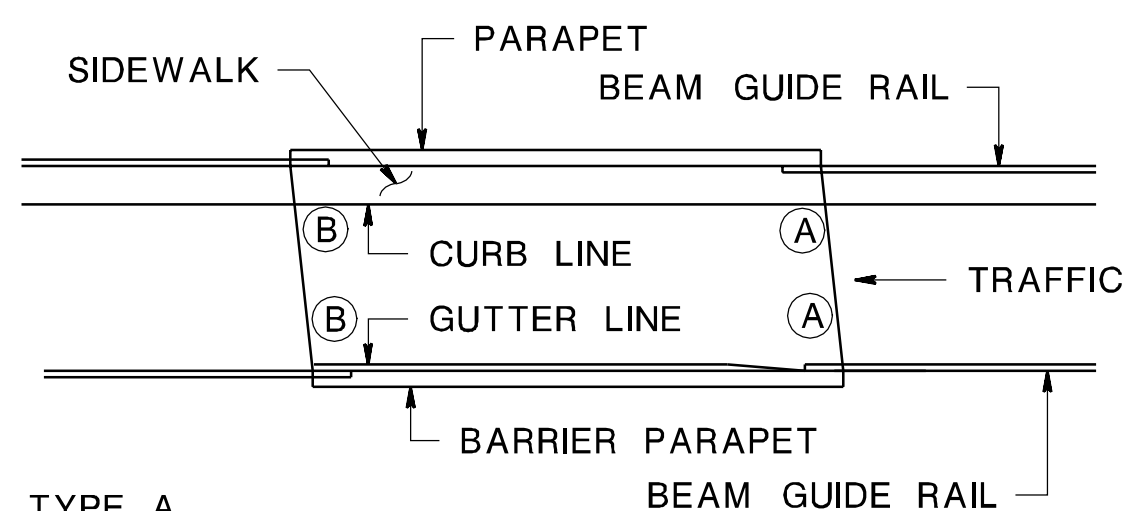
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TWO WAY TRAFFIC - UNDIVIDED



TWO WAY TRAFFIC - DIVIDED



BRIDGE ATTACHMENT TYPES

- (A) ATTACHMENT TYPE A
(B) ATTACHMENT TYPE B
SEE CD-612-9.1

CD-612-9.3

GENERAL NOTES

STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36 AND SHALL BE GALVANIZED PER ASTM A123.

STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A307, UNLESS DESIGNATED AS HIGH STRENGTH. HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325. HARDWARE SHALL BE GALVANIZED PER ASTM A153.

CONCRETE SHALL BE CLASS B CONCRETE.

REINFORCEMENT SHALL CONFORM TO ASTM A 615, GRADE 60.

HIGH STRENGTH BOLTS FOR BASE PLATE ANCHORAGE SHALL BE FULLY THREADED AND INSTALLED IN CORED HOLES NO GREATER THAN THE BOLT DIAMETER PLUS 1/4". CARE SHALL BE EXERCISED TO AVOID DAMAGE TO EXISTING REINFORCEMENT AND CONDUITS. MINIMUM EMBEDMENT LENGTH SHALL BE 6". BOLTS SHALL BE EPOXY GROUTED IN PLACE PER MANUFACTURER'S RECOMMENDATIONS TO ATTAIN A MINIMUM PULLOUT STRENGTH OF 24,000 POUNDS AT THE CONSTRUCTION SITE AS CERTIFIED BY THE CONTRACTOR.

HIGH STRENGTH BOLTS FOR BASE PLATE ANCHORAGE MAY BE CAST IN PLACE IN FRESH CONCRETE WITH A MINIMUM EMBEDMENT LENGTH OF 20".

BEAM GUIDE RAIL ATTACHMENTS

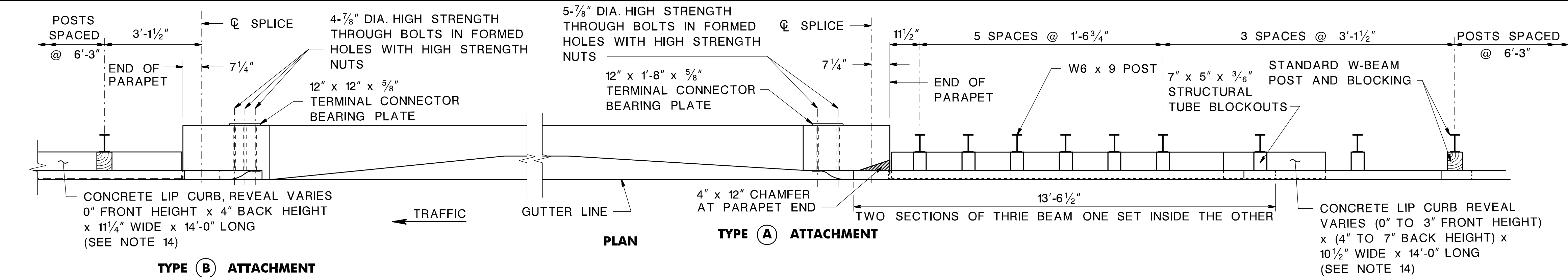
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CD-612-9

NEW JERSEY DEPARTMENT OF TRANSPORTATION

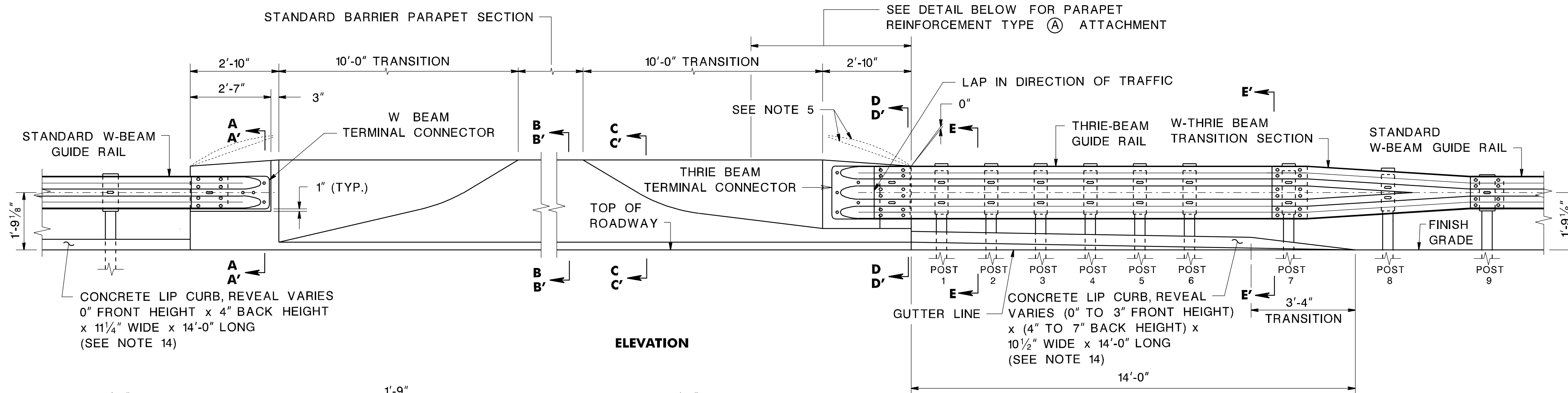
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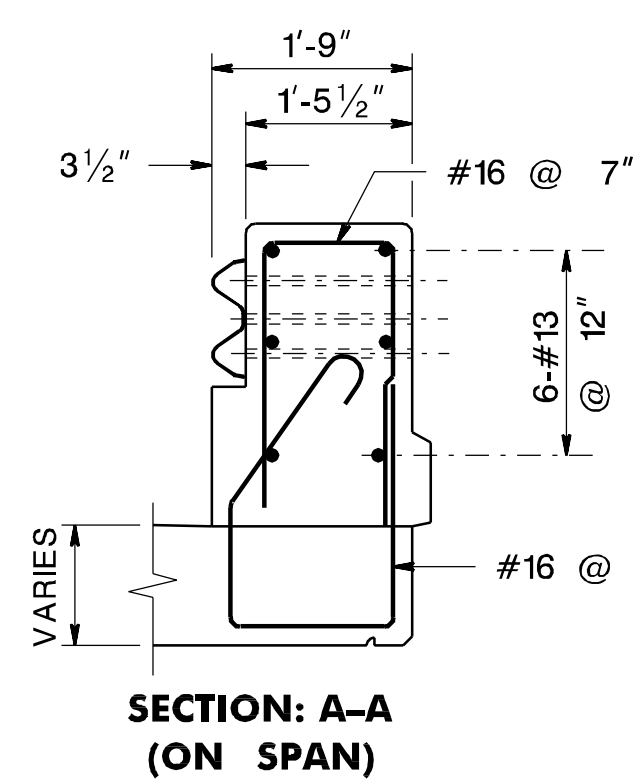


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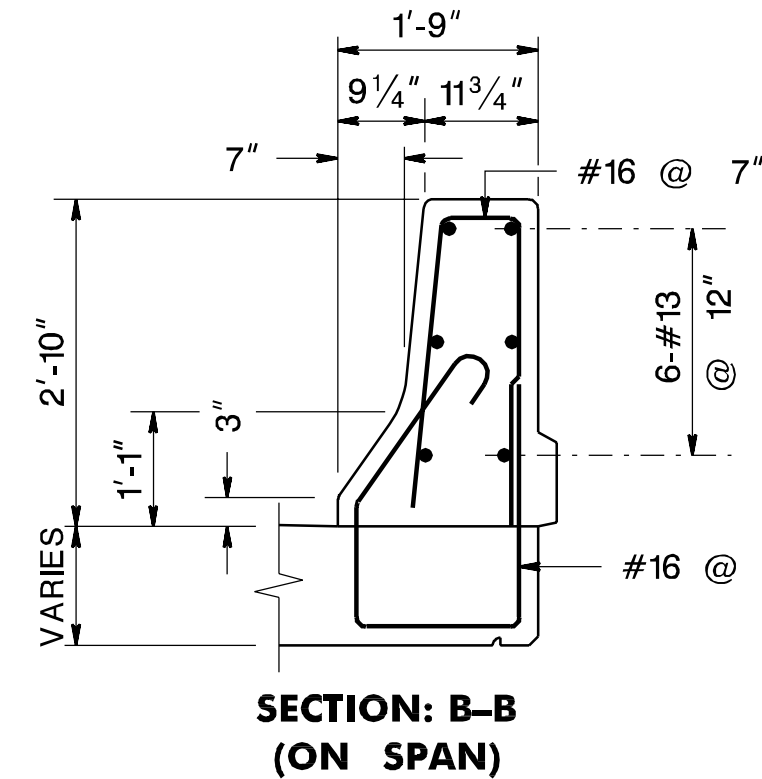
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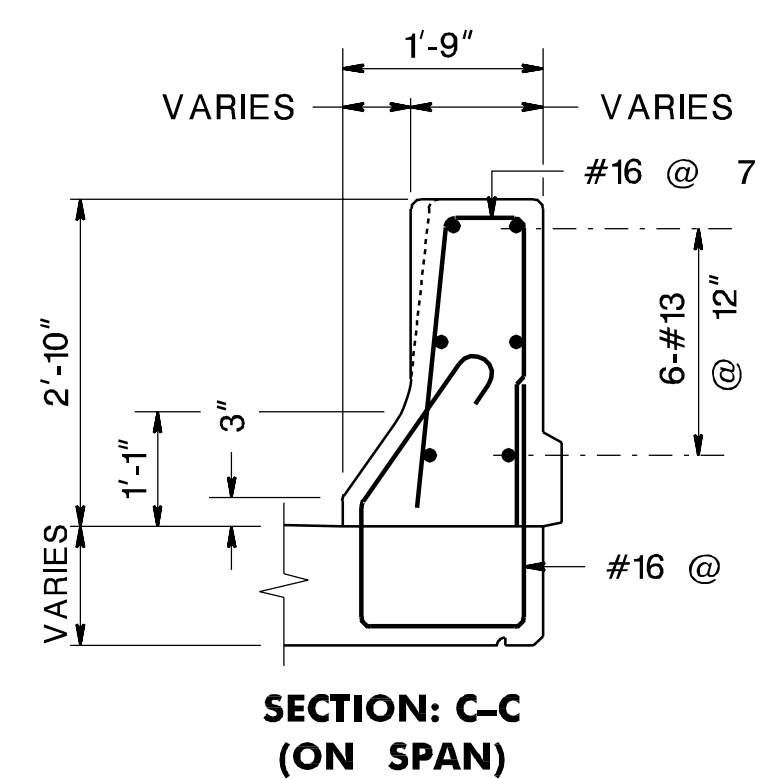
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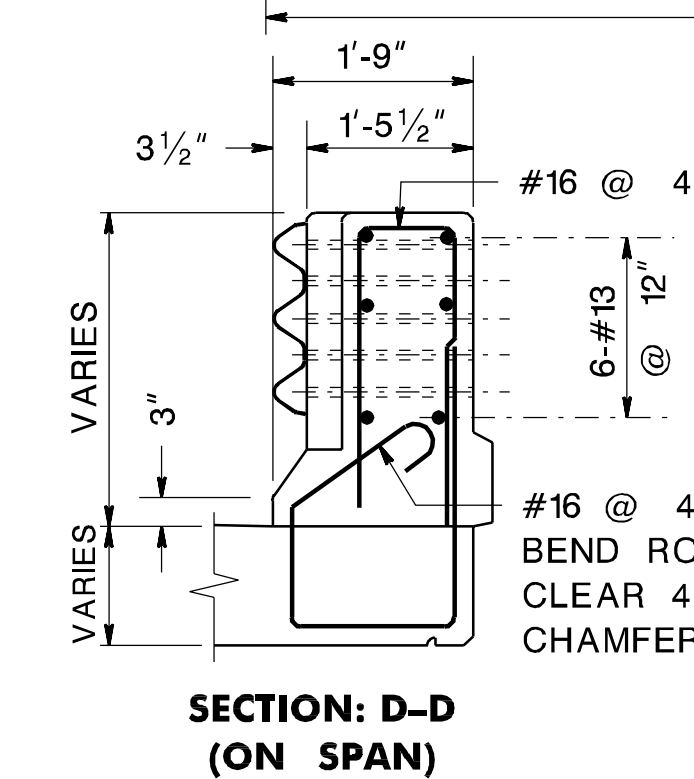
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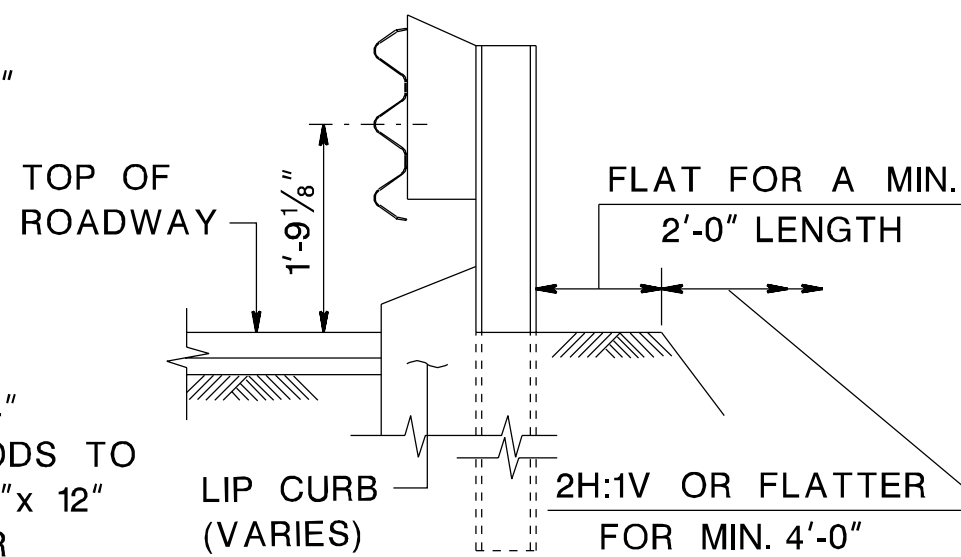
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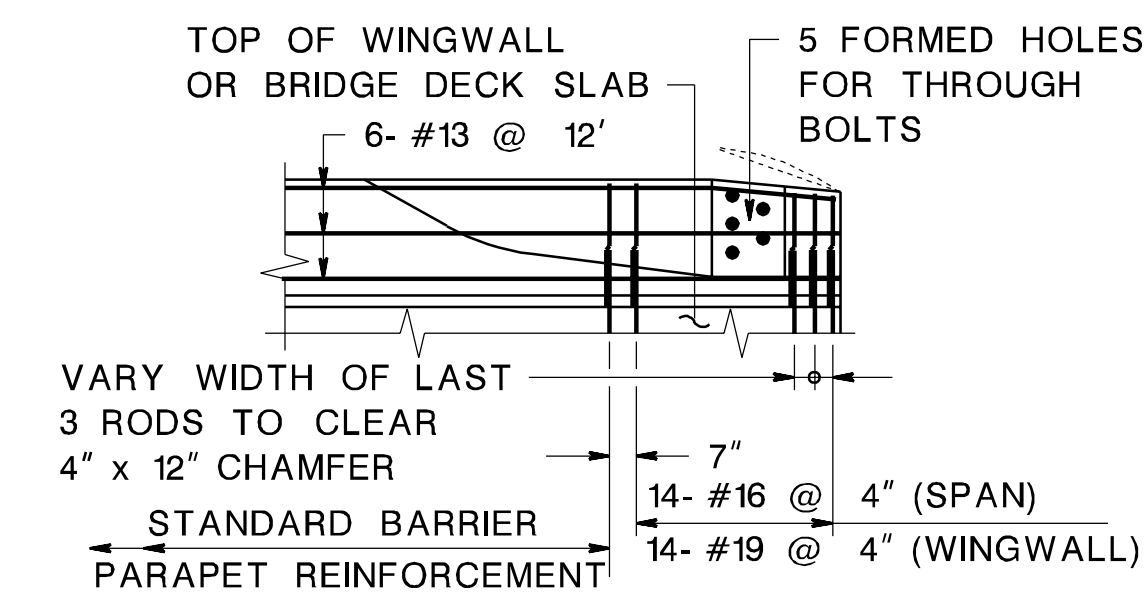
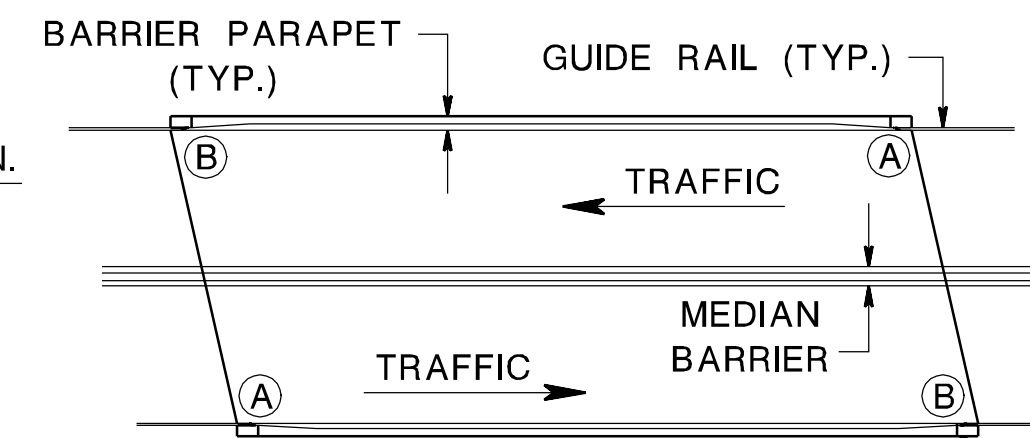
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SECTION: D-D
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SECTION: E-E



INTERIOR ELEVATION
PARAPET REINFORCEMENT
TYPE (A) ATTACHMENT

REINFORCING BARS ARE IN METRIC UNITS.

BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

CD-612-13

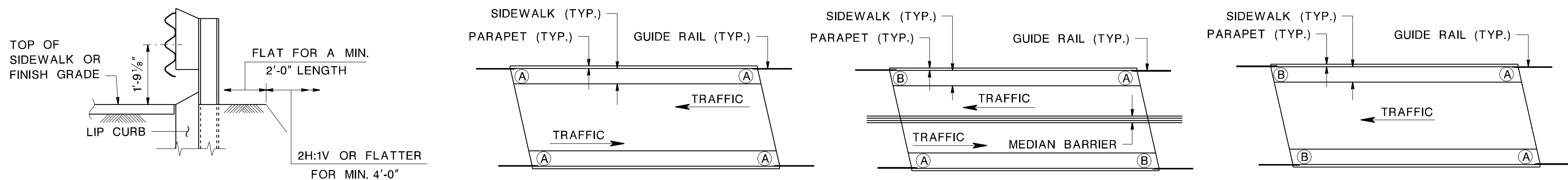
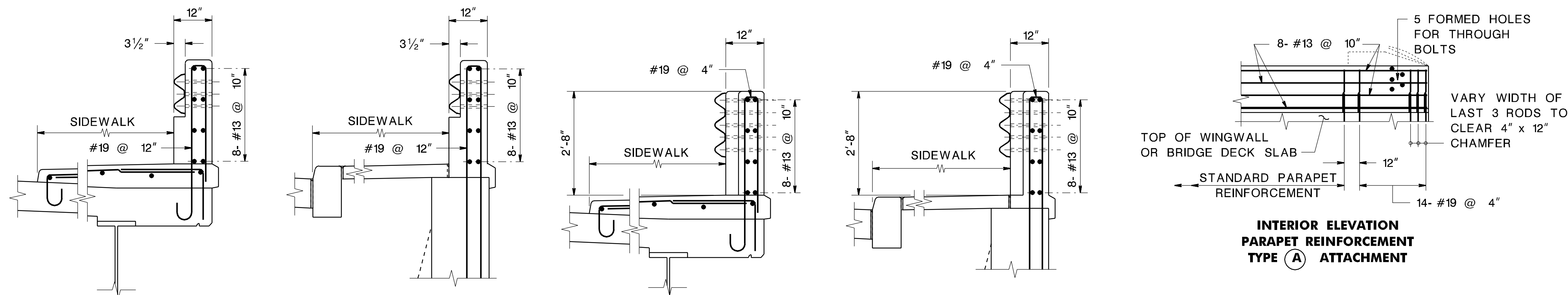
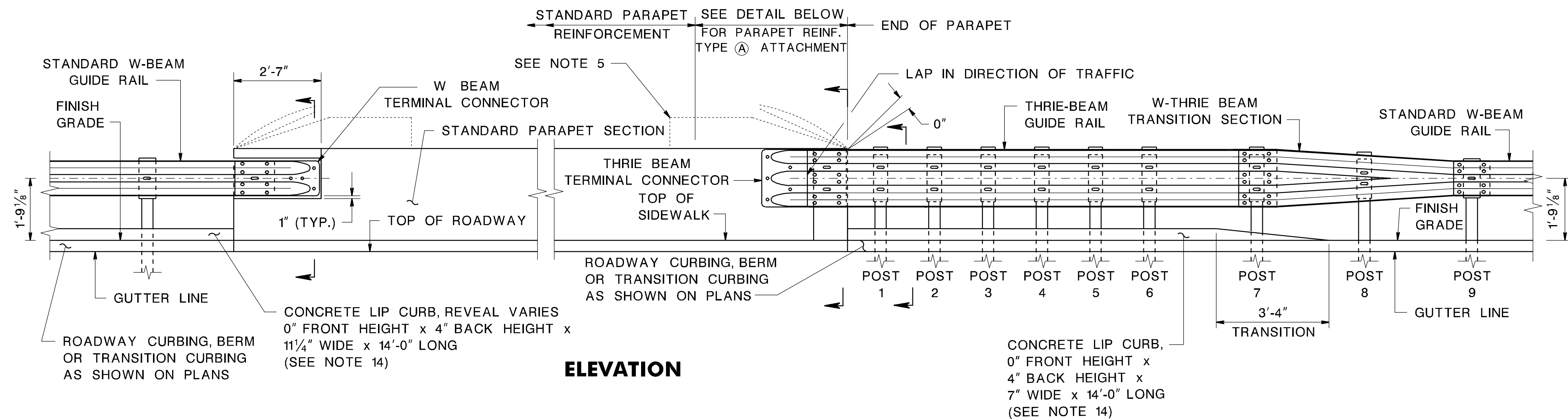
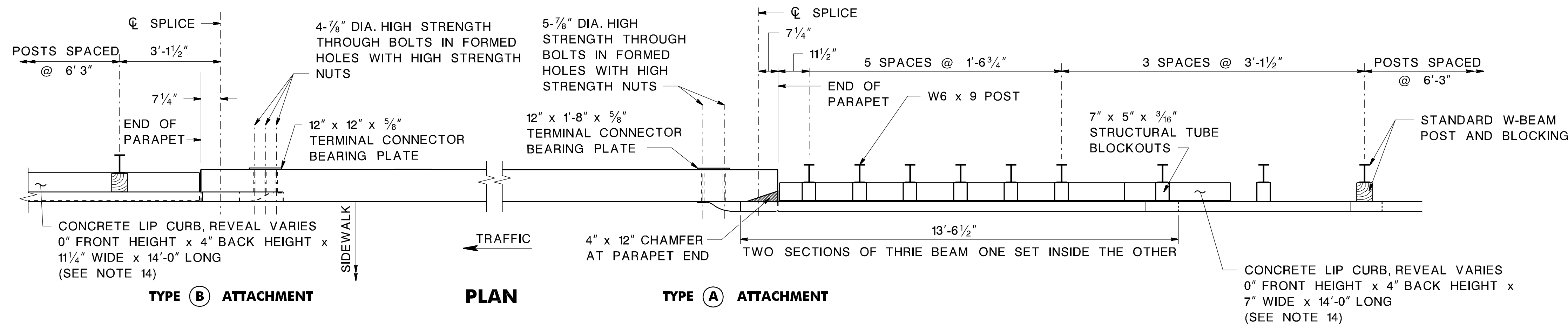
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-612-13.1

NOTES:

1. THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY BARRIER SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUIDE RAIL CONNECTION.
2. FOR RECOMMENDED ATTACHMENT, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
3. ALL CROSS SLOPE BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 10H:1V OR FLATTER.
4. EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
5. BARRIER PARAPET END MAY HAVE TO BE RECONFIGURED TO ACCEPT DIFFERENT TYPES OF RAILING OR FENCING THAT MAY BE MOUNTED ON TOP OF THE PARAPET.
6. AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING FOR POST #1, #3 AND #5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
7. POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
8. LOCATE CONDUIT AT END OF BARRIER PARAPETS SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
9. LOCATE DRAINAGE INLETS AND ELECTRICAL JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
10. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED PER AASHTO M111.
11. HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
12. THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 12-GAUGE.
13. FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.
14. CONCRETE LIP CURB MAY BE OMITTED AT UNDERPASS, WHERE EROSION CONTROL IS NOT NECESSARY.



1. THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE.
2. FOR RECOMMENDED ATTACHMENT TYPE, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
3. ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 10H:1V OR FLATTER.
4. EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
5. WHEN RAILING IS INSTALLED ON TOP OF PARAPET, PARAPET END SHALL BE MODIFIED TO ACCOMMODATE HORIZONTAL RAIL ATTACHMENT TO PARAPET. REFER TO STANDARD RAILING PLATE FOR ATTACHMENT DETAILS.
6. AT TYPE (A) ATTACHMENTS, THREE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, 3 & 5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
7. POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
8. LOCATE CONDUIT AT END OF PYLON SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
9. LOCATE DRAINAGE INLETS AND ELECTRIC JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
10. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED AS PER AASHTO M111.
11. HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
12. THE THICKNESS OF THREE-BEAM, W-BEAM AND W-THREE BEAM TRANSITION SHALL BE 12-GAUGE.
13. FOR ADDITIONAL THREE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.
14. CONCRETE LIP CURB MAY BE OMITTED AT UNDERPASS, WHERE EROSION CONTROL IS NOT NECESSARY.

REINFORCING BARS ARE IN METRIC UNITS.

BEAM GUIDE RAIL ATTACHMENTS

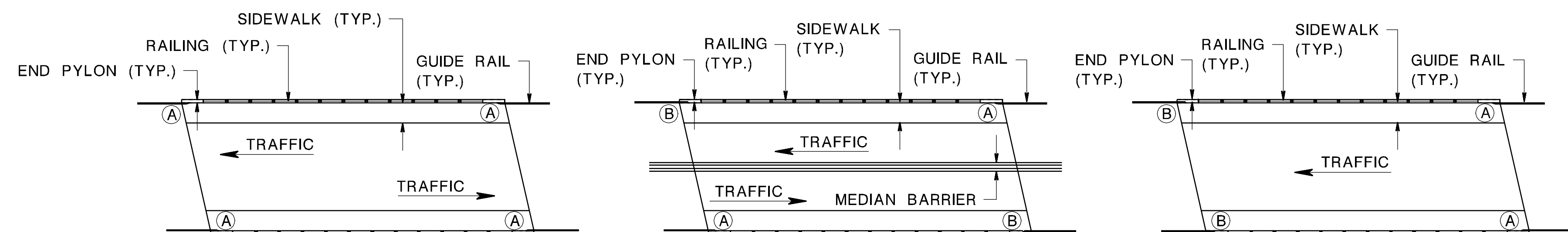
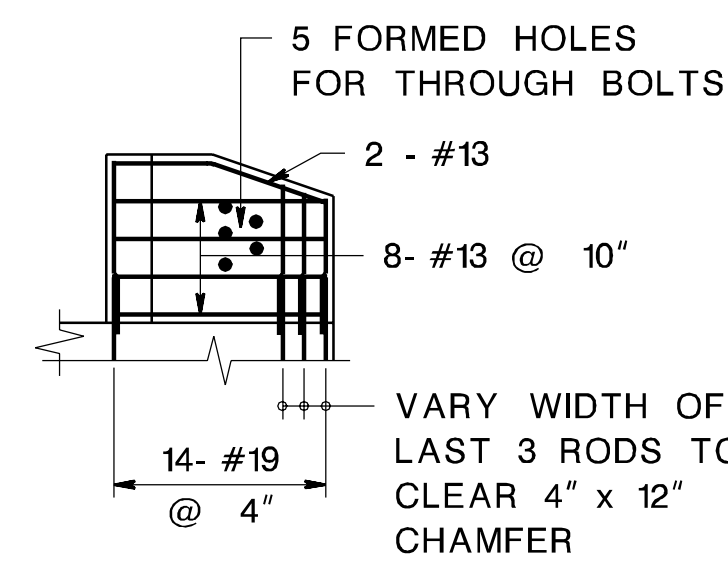
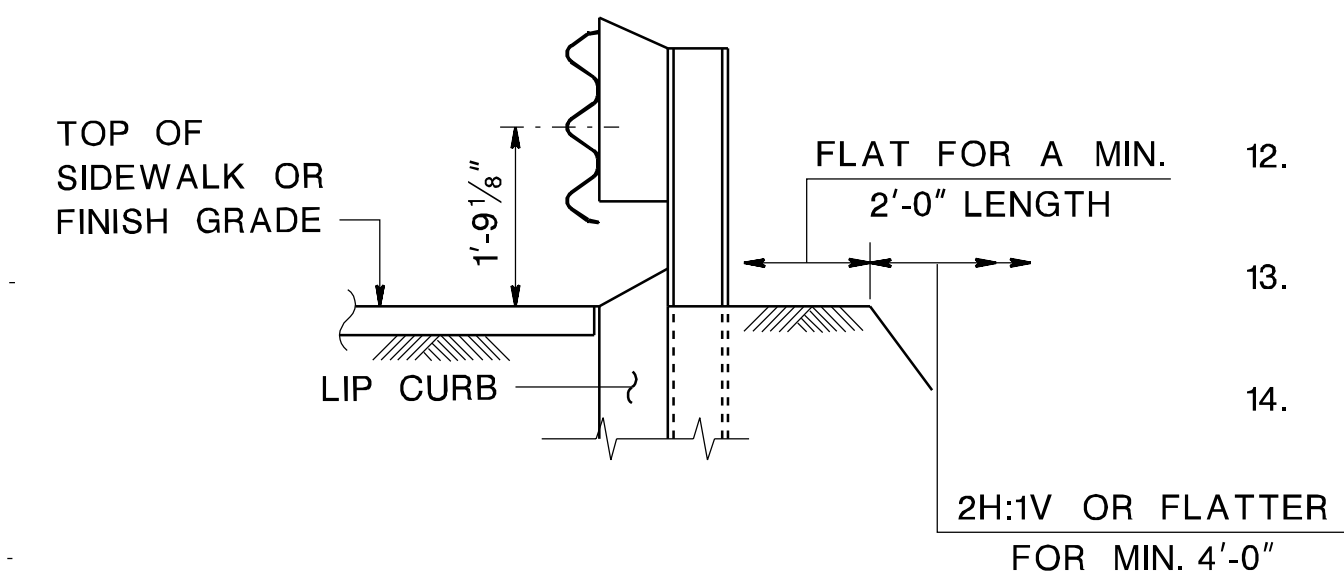
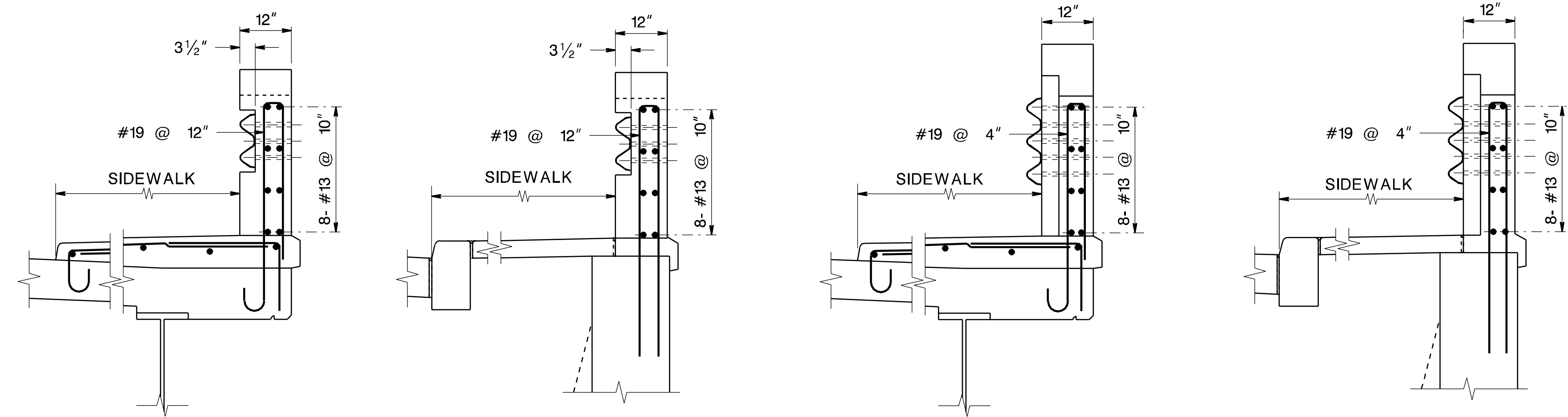
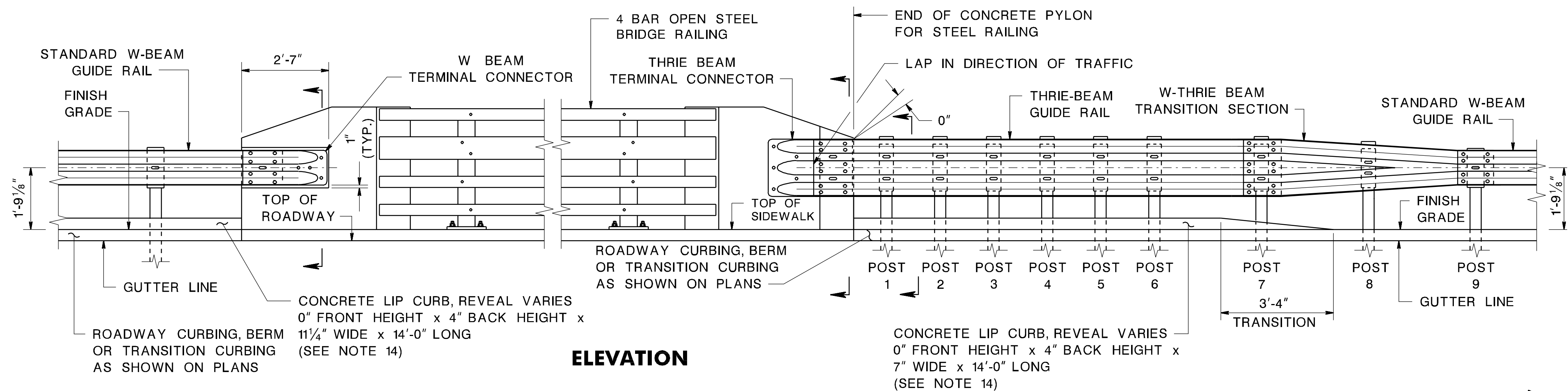
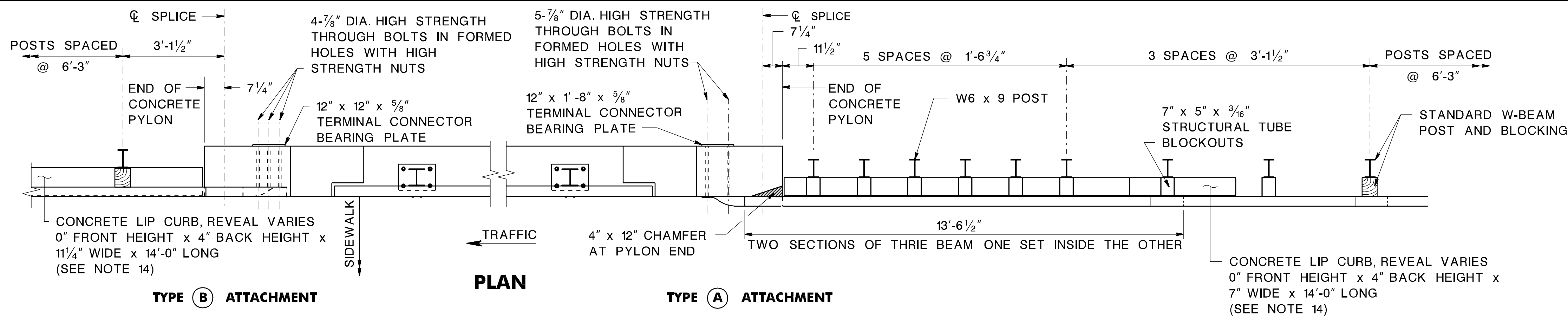
N.T.S.

CD-612-15

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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- THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE.
- FOR RECOMMENDED ATTACHMENT TYPE, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
- ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 10H:1V OR FLATTER.
- EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 2'-0" AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
- CONCRETE PYLONS TO BE CONSTRUCTED AT ALL ENDS OF STEEL RAILING. ATTACH GUIDE RAIL TO THE PYLONS.
- AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, 3 & 5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
- POSTS 1 THRU 7 SHALL BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POST 8 SHALL BE 6'-8" LONG WITH 4'-6" POST EMBEDMENT. POST 9 SHALL BE 6'-8" LONG WITH 4'-4" POST EMBEDMENT.
- LOCATE CONDUIT AT END OF PYLON SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
- LOCATE DRAINAGE INLETS AND ELECTRIC JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
- STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270 AND SHALL BE GALVANIZED AS PER AASHTO M111.
- HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
- THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 12-GAUGE.
- FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.
- CONCRETE LIP CURB MAY BE OMITTED AT UNDERPASS, WHERE EROSION CONTROL IS NOT NECESSARY.

REINFORCING BARS ARE IN METRIC UNITS.

BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

CD-612-16

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-612-16.1